

Cell H - Requires a VERY low concentration of the Bicoid protein & must be in direct contact with D & F. Will become a bottom tail segment.

Cell B – Requires a High concentration of the Bicoid protein & must be in direct contact with E & G only. Will contain the eyes and develop antennae.

Cell D - Requires a VERY low concentration of the Bicoid protein & must be in direct contact with H & F. Will become a top tail segment

Cell E - Requires a High concentration of the Bicoid protein & must be in direct contact with B & K only. Will develop breathing pores.

Cell C - Requires a low concentration of the Bicoid protein & must be in direct contact with K only. Will develop the back legs.

Cell G - Requires a High concentration of the Bicoid protein must be in contact with B only. Will develop into the mouth

Cell I - Requires a medium concentration of the Bicoid protein & must be in direct contact with K only. Will develop wings.

Cell F – Requires a VERY low concentration of the Bicoid protein & must be in direct contact with J, H, & D. Will contain vibrantly colored structures for mating rituals.

Cell J – Requires a low concentration of the Bicoid protein & must be in direct contact with K & F only. Will contain the reproductive organs.

Cell K - Requires a medium concentration of the Bicoid protein & must be in direct contact with E, A, C, J & I only. Will develop into most of the vital organs (heart, stomach, etc.)

Cell A - Requires a medium concentration of the Bicoid protein & must be in direct contact with K only. Will develop the front legs..

1. Cut out the provided “Cells” & construct a body plan, showing relative concentrations of the Bicoid protein. Use dots to model these concentrations (many dots for a high concentration, few dots for low concentration, etc.).
2. Construct a picture of what the “Organism” would look like including all associated parts. And of course give your organism a name of your choice.
3. Predict 5 disruptions to the organism’s development and their consequences, and justify your predictions. (I.e. A higher concentration of bicoid in cell A may produce extremely long front legs if bicoid is a growth factor).
4. For 1 of the disruptions predicted, draw what the organism would look like as a result.